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SUPERIORITY OF HOME VERSUS CLINIC BLOOD PRESSURE AS A DETERMINANT OF HYPERTENSIVE HEART DISEASE IN BLACK ADULTS

Poster Contributions
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Authors: *Florian Rader, Stanley Franklin, Robert W. Haley, Ning Li, Robert Elashoff, Ronald Victor, Cedars-Sinai Heart Institute, Los Angeles, CA, USA*

Background: Black Americans suffer disproportionately from hypertensive heart disease but expert panels debate the goal of antihypertensive therapy, i.e., the level of clinic blood pressure (BP) that needs to be achieved in order to eliminate this disparity. Because clinic BP is so prone to both over-estimation and under-estimation of patients' typical BP in their daily lives, we hypothesized that home BP is more representative of daily left ventricular pressure overload and thus constitutes a more potent determinant of left ventricular hypertrophy (LVH).

Methods: We analyzed cross-sectional data from 1,262 non-Hispanic black and 927 non-Hispanic white adults ages 30-64 years who underwent both multiple home BP and clinic BP measurements with the same validated oscillometric BP monitor and cardiac magnetic resonance imaging to test for LVH in the Dallas Heart Study, a population-based probability sample.

Results: LVH, as expected, was far more common among black than white adults, in both untreated subjects (13% vs. 4%, p<0.001) and treated hypertensives (31% vs. 17%, p<.001). In multivariate logistic regression that accounted for conventional determinants of LVH_clinic systolic BP, age, and smoking_for each 10 mmHg increase in home systolic BP above 110 mmHg, the probability of LVH increased by 46% in untreated black subjects (adjusted odds ratio, aOR 1.46; 95% confidence interval, CI: 1.24-1.73, P<0.001) and by 52% (aOR 1.52; 95% CI, 1.31-1.76, P<0.001) in treated black hypertensives. After adjusting for home systolic BP, increased clinic systolic BP remained a determinant of LVH in untreated black subjects (aOR 1.28; 95% CI, 1.09-1.51, P<0.03) but was no longer a determinant of LVH in treated black hypertensives (aOR 1.06; 95% CI, 0.91-1.24, p=0.4). Similar trends were observed in whites.

Conclusion: These observational data demonstrate the superiority of home versus clinic blood pressure as a determinant of LVH in a high-risk contemporary urban black population. Strict reliance on conventional clinic BP by hypertension guidelines panels may perpetuate under-treatment of daily pressure overload and thus missed opportunities to prevent hypertensive heart disease in black patients.